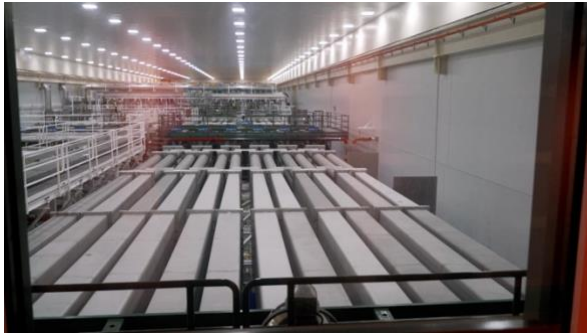


Scientific & Digital Briefs

By Shopper Editor Dave Bunting

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The tubes that deliver energy to the lasers

A star is born!

Nuclear fusion breakthrough that is a step to unlimited clean energy!

Last month, the nearest star to the Earth was in California. In a laboratory, for the first time, the world's largest lasers forced atoms of hydrogen to fuse together in the same kind of energy producing reaction that fires the sun. It lasted less than a billionth of a second. But, after six decades of toil and failure, the Lawrence Livermore National Laboratory proved it could be done. If fusion becomes commercial power one day, it would be endless and free of carbon-burning. In other words, it would drastically change human life. As you'll see, there's far to go. But after December's breakthrough, we were invited to tour the lab and meet the team that brought star power down to Earth.

Uncontrolled fusion is easy--mastered so long ago the films are in black and white. Fusion is what the sun and a hydrogen bomb do, releasing energy by forcing atoms of hydrogen to fuse together. What's been impossible is harnessing the fires of the sun into something useful.

The National Ignition Facility, or NIF, was built for \$3.5 billion to ignite self-sustaining fusion. They tried to achieve ignition nearly 200 times over 13 years. But like a car with a weak battery, the atomic 'engine' would never turn over.

Ignition means igniting a fusion reaction that continues and puts out more energy than the lasers put in.

If you can get it hot enough, dense enough, fast enough, and hold it together long enough, the fusion reactions start to self-sustain. And that's really what happened here on December 5th.

Last month, the laser shot fired from their control room put two units of energy into the experiment, atoms began fusing, and about three units of energy came out!

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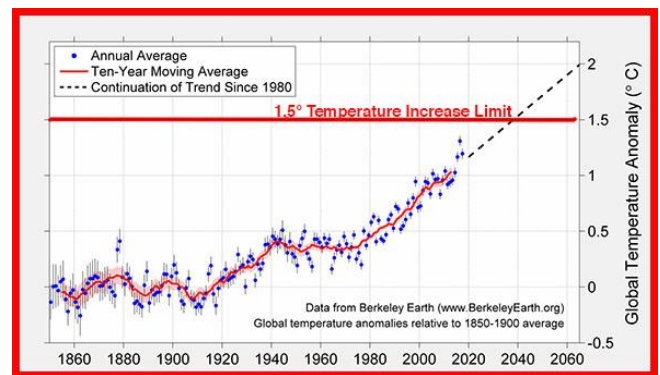
COVID taught us to be lonely. We must break the habit.

Communities can be amazingly resilient after traumas. Londoners banded together during the German Blitz bombings of World War II, and rebuilt the city afterward. When I visited the Thai island of Phuket six months after the 2004 tsunami killed [thousands](#) in the region and displaced even more, I found a miraculous recovery in progress, and in many places, little remaining evidence of the tragedy. It was inspirational.



Going from surviving to thriving is crucial for healing and growth after a disaster, and scholars have [shown](#) that it can be a common experience. Often, the worst conditions bring out the best in people as they work together for their own recovery and that of their neighbors.

Unfortunately COVID appears to be resistant to this phenomenon, probably because it was the governments' intentional but always confused orders, shutdowns, quarantines and masking that separated us. And governments still can't figure out whether these measures should be continued. The most salient social feature of the pandemic was how it forced people into isolation; for those fortunate enough not to lose a loved one, the major trauma it created was loneliness. Instead of coming together, emerging evidence suggests that we are in the midst of a long-term semi-permanent intentionally-inflicted habitual loneliness, in which our critically essential relationships were severed and never reestablished.



COP27 Climate Conference Conclusion makes no mention of fossil fuels

A draft outline of summit conclusions fails to mention the phaseout of [fossil fuels](#) and says that "urgency of action" is required to keep the 1.5 degrees Celsius goal "within reach."

Greenpeace said it was "shocked" at the contents of the draft outline, which was issued three days before the end of the conference in the Egyptian resort of Sharm el-Sheikh.

"It is scarcely credible that they have forgotten all about fossil fuels," said Yeb Sano, who heads the Greenpeace delegation to the conference.

On 20 November, the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) concluded with a historic decision to establish and operationalize a loss and damage fund.

Welcoming the decision and calling the fund essential, UN Secretary-General António Guterres said that more needs to be done to drastically reduce emissions now. "The world still needs a giant leap on climate ambition."

"The red line we must not cross is the line that takes our planet over the 1.5-degree temperature limit," he stressed, urging the world not to relent "in the fight for climate justice and climate ambition."

"We can and must win this battle for our lives," he concluded.

Dave Bunting, Jan. 17, 2023. Credits are in links behind item titles.

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